REMARKS

Applicant respectively requests reconsideration. Claims 1-31, 33, 34 and 36-39 were previously pending. Applicant has amendment independent claim 1 to include recitations from claims 5 and 37. The dependencies of claims 6 and 7 have been amended to be consistent with the amendment to claim 1. Applicant has cancelled claims 5 and 37. Accordingly, claims 1-4, 6-31, 33, 34 and 36, 38, 39 are currently pending for examination with claim 1 being independent.

Rejection of Claims 1-20, 22-31, 33, 34, 36, 38 and 39

Claims 1-20, 22-31, 33, 34, 36, 38 and 39 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,784,463 (Camras) in view of U.S. Patent No. 5,779,924 (Krames).

Claim 1 has been amended to include the recitation of claim 37, which does not stand rejected on this ground, and the recitation of claim 5. Therefore, amended claim 1, and its dependent claims, are patentable over Camras in view of Krames for at least this reason.

As discussed further below, claim 37 was rejected under 35 U.S.C. §103(a) as being unpatentable over Camras in view of Krames and further in view of U.S. Patent No. 6,462,358 (Lin). Accordingly, Applicant is also addressing the patentability of amended claim 1 in view of the combination of Camras in view of Krames and further in view of Lin.

Claim 1 has been amended to recite that the first layer, which is **n-type**, has a **thickness of less than 10 micron**. It is also noted that claim 1 recites that light generated by the light-generating region can emerge from the light-emitting device via the surface of the first layer and that the **surface of the first layer is in contact with a material comprising a gas**. For reasons noted below, the combination of Camras in view of Krames and further in view of Lin fails to render obvious a light-emitting device having a first layer with all of the claimed features highlighted above.

The Office Action refers to semiconductor region 114 (FIG. 2A) in Camras as the "first layer". The Office Action further states that Camras does not disclose that the first layer is n-doped but suggests it would have been obvious to use an n-doped first layer as disclosed by Krames as the first layer in the light-emitting device disclosed by Camras (page 3, first paragraph). The Office

Action further states that the combination of Camras and Krames fails to teach that the first layer has a thickness of less than 10 microns, but asserts it would have been obvious for the first layer to have a thickness of less than 3 microns as disclosed by Lin.

Semiconductor Region 114 in Camras as "First Layer"

As noted above, the Office Action refers to semiconductor region 114 (FIG. 2A) in Camras as the "first layer" recited in claim 1. However, the surface of the region 114 through which light generated by the light-generating region emerges **is not in contact** with a material comprising a gas (e.g., air), as claimed. (Emphasis added). Instead, the surface of region 114 through which light generated by the light-generating region emerges is in contact with bonding layer(s) 126 in FIG. 2A. Therefore, even if region 114 in Camras is modified to be n-doped as taught in Krames and to have a thickness of less than 3 microns as allegedly taught in Lin[1], region 114 still does not meet the limitations of the "first layer" in claim 1, since it is not in contact with a material comprising gas.

Thus, if Camras is combined with Krames and further in view of Lin in this manner, each limitation of claim 1 is not taught or suggested.

Superstrate 117 in Camras as "First Layer"

Though the Office Action does not appear to assert that superstrate 117 could be the "first layer" as recited in claim 1, Applicant is commenting on this point in anticipation of such consideration.

As noted above, claim 1 has been amended to recite that the first layer has a thickness of less than 10 micron. In contrast, Camras only discloses superstrate thicknesses significantly outside of the claimed range - between about 25 micron to about 1000 micron. Camras teaches that such relatively thick superstrates can lead to desirable properties and performance attributes (See Camras, e.g., Column 5, lines 64 - Column 6, line 7) including improved light extraction efficiency, mechanical strength and stability, as well as heat spreading. Thus, one of ordinary skill in the art would not have been motivated to modify the thickness of superstrate 117 to have the claimed

[1] The teaching in Lin is further discussed below.

thickness range of less 10 micron, since the modified device would have inferior properties and performance.

Because one of ordinary skill in the art would not have been motivated to modify the Camras device in this manner, the references may not be combined in this manner to render claim 1 obvious.

New N-type Layer in Camras as "First Layer"

Though the Office Action does not appear to assert that a new "n-type" layer as taught by Krames could be added to the existing Camras structure to be the "first layer" as recited in claim 1, Applicant is commenting on this point in anticipation of such consideration.

Firstly, Applicant notes that the "first layer" in Krames is doped to create an active p-n junction region 2 between a second layer doped with an opposite conductivity type (See Krames, Column 6, line 66, 7, line 1). Krames fails to teach any type of n-doping for the purpose of improving device performance (e.g., light extraction) as suggested in the Office Action. Instead, Krames discloses that device performance (e.g., light extraction) is enhanced by texturing the interface to include physical features (See Krames, Abstract). Therefore, the teaching in Krames related to n-type layers is limited to use of such layers to create active p-n junction regions.

The existing Camras structure already includes an active p-n junction. As noted in Camras, layers 114 and 116 may be doped opposite conductivity types to create an active region 112. (See Camras, Column 4, lines 25-29). Therefore, one of ordinary skill in the art would not have been motivated to add a new "n-type" layer to the existing Camras structure because such layer would have no function since the Camras structure already has an existing "n-type" layer (e.g., either layer 114 or layer 116).

Applicant further notes that a "n-type" layer added to the existing Camras structure would also need to meet the limitation of claim 1 that the surface of the such layer, through which light generated by the light-generating region emerges, is in contact with a material comprising a gas. It appears unclear to the Applicant how that limitation would be met without impairing light emission from the Camras device.

For at least these reasons, one of ordinary skill in the art would not have been motivated to modify the Camras device to include a new "n-type" layer which meets the claim limitations of the "first layer" and, thus, the references may not be combined in this manner to render claim 1 obvious.

"First Layer" Thickness Teaching in Lin

Applicant further notes that the Office Action identifies upper cladding layer 54 in Lin as the "first layer" in the Office Action and relies on the thickness of such layer as teaching the thickness limitation of claim 1. However, the surface of cladding layer 54 through which light generated by the light-generating region emerges **is not in contact** with a material comprising a gas (e.g., air), as claimed. (Emphasis added). Instead, the surface of layer 54 through which light generated by the light-generating region emerges is in contact with adhesive layer 55 as shown in FIG. 5 and described between Column 4, lines 25-41. The structure shown in FIG. 4 is an intermediate structure which is further processed to form the device of FIG. 5 as is clear from the specification. Thus, Lin fails to teach a "first layer" having a thickness of less than 10 micron (and other limitations) as recited in claim.

Therefore, even if region 114, superstrate 119 or a new "n-type" layer in Camras is modified to include the thickness of the "first layer" disclosed in Lin, such region/superstrate/"n-type" layer would not have a thickness of less than 10 microns. Thus, each limitation of claim 1 would not be met the combination.

Claim 1: Summary

For the reasons noted above, one of ordinary skill in the art would not have been motivated to combine the references and/or even if one combined the references, each claim limitation of claim 1 would not have been taught or suggested by the combination. Therefore, claim 1 is not obvious in view of the combination. The remaining claims that stand rejected on this ground all depend from claim 1 and, thus, are also patentable for at least these reasons.

Rejection of Claim 21

Claim 21 was rejected under 35 U.S.C. §103(a) as being unpatentable over Camras in view of Krames and further in view of U.S. Publication No. 2004/0043524 (Huang).

Huang fails to provide the deficiency of the combination of Camras in view of Krames and in further view of Lin as described above. Thus, independent claim 1, and dependent claim 21, are patentable over this combination.

Accordingly, Applicant respectfully requests withdrawal of the rejection on this ground.

Rejection of Claim 37

Claim 37 was rejected under 35 U.S.C. §103(a) as being unpatentable over Camras in view of Krames and further in view of Lin. Independent claim 1 was amended to include the recitation of claim 37 and this rejection was addressed above in connection with independent claim 1. Claim 37 has been cancelled.

Accordingly, Applicant respectfully requests withdrawal of the rejection on this ground.

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Respectfully submitted,

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